

K8JTK Hub

Digital VoIP Multimode Interlink System (DVMIS)



Jeffrey Kopcak - K8JTK

Why, in the world...?

- Ham radio experimentation
- Support open source projects
- Interlink **ham radio** VoIP modes for interoperability
- Utilize ham radio spectrum
- Reliable and resilient - hardware, power, weather
- Fairly inexpensive (Emile approved?)

Packages:

- **AllStarLink** - Linking over IP networks
- **G4KLX** - Supporting programs for D-Star, DMR, System Fusion, P25, NXDN
- **DVSwitch** - Tools and programs related to provisioning and operating Amateur Radio digital voice networks
- **thebridge** - EchoLink compatible conference bridge

img: [luis gomes](#)

Packages: AllStar Link

AllStarLink is a world wide network of Amateur Radio repeaters, remote base stations and hot spots accessible to each other via the Internet and/or private IP networks

- Open-source PBX Asterisk
- Linux (including Raspberry Pi)
- Jim Dixon - WB6NIL (SK)
- app_rpt module - repeater controller
- **AllStarLink**

img: luis gomes

Packages: G4KLX

Programs that support D-Star, DMR, System Fusion, P25, NXDN

- Jonathan - G4KLX
- ircDDBGateway, NXDNReflector, NXDNGateway, P25Reflector, P25Gateway, YSFReflector
- MMDVM implemented in devices, boards, hotspots like Pi-Star and OpenSpot
- github: [G4KLX](#)

Packages: DVSwitch

Tools and programs related to provisioning and operating Amateur Radio digital voice networks

- Steve - N4IRS & Michael - N4IRR
- MMDVM_Bridge (hacked MMDVM), Analog Bridge, and md380-emu (KK4VCZ md380tools) / OP25 (Osmocom, others) codecs
- Linux based
- DVSwitch Mobile Android app + Pi/Linux server = multimode HT
- ASL to DMR documentation (groups.io account required)
- Groups.io: DVSwitch

Packages: XLXD

XLX Multiprotocol Gateway Reflector Server is part of the software system for the D-Star Network

- Jean-Luc - LX3JL & Luc - LX1IQ
- **Four D-STAR reflector protocols**: REF, XRF, DCS, XLX
- XLXD speaks all four protocols +
- DMR and YSF transcoding (not used, additional hardware)
- github: **XLXD**

Packages: thebridge

CQINet is a family of programs that combine Ham Radio with the Internet using Voice over IP (VoIP) technology

- Skip - WB6YMH & others
- EchoLink compatible conference bridge
- Sourceforge: **Thebridge**

Putting it together

Chicago data center

- Three VPSes (virtual private servers)
- Linux Debian OS
- Low latency to remote hardware
- **Ten different networks! Eight full-time modes!**
- Any user on one network can communicate with users on any other
- AllStar is the "Hub", individual nodes for control

Remote hardware

- **Raspberry Pi** & NW Digital Radio **DV3000**
- Wires-X: **HRI-200** & FTM
- Hardware in data center = \$\$\$

K8JTK Hub: The Nodes

- AllStar Link: 50394
- DMR: Brandmeister Talkgroup (TG) ~~31983~~ 3172783
- DMR: TGIF Talkgroup (TG) 31983
- D-STAR: XLX983A - "A" for Analog Bridge
- EchoLink: *DVMIS* 600008
- Hamshack Hotline: 94026 *99 - TX, # - RX
- NXDN: TG 31983
- P25: TG 31983
- YSF: K8JTK-Hub 31983
- Wires-X: K8JTK-ROOM 40680

Info on connecting, systems, radios, status, and more:

K8JTK Hub

K8JTK Hub: Dashboards

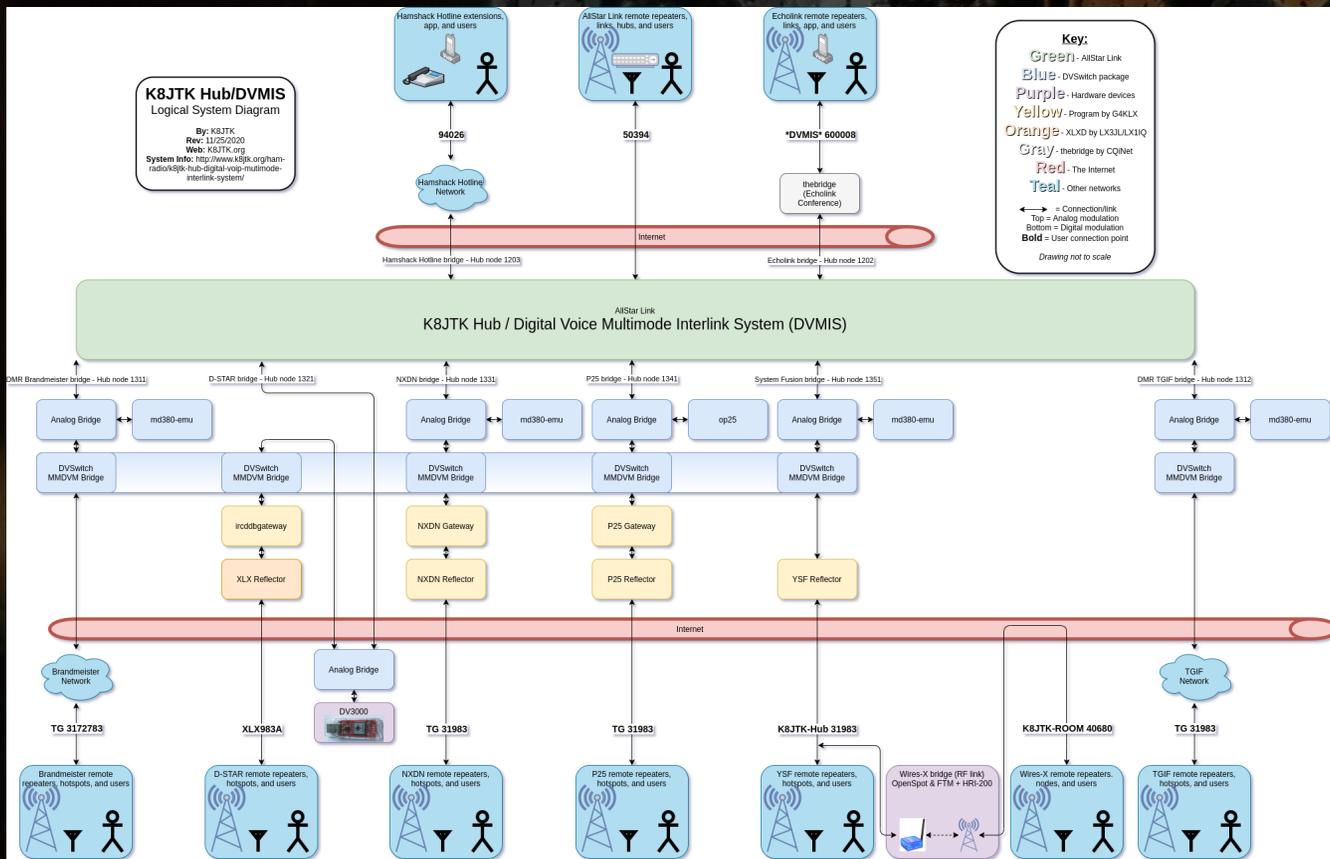
- AllStar Link & Hamshack Hotline: Allmon2.K8JTK.org,
Bubble Chart
- DMR: Brandmeister TG ~~31983~~ 3172783 Last Heard, TGIF
Last Heard & TGIF Active TG
- D-STAR: XLX983.K8JTK.org
- NXDN: NXDNReflector31983.K8JTK.org
- P25: P25Reflector31983.K8JTK.org
- YSF: YSFReflector31983.K8JTK.org
- Allmon2: 1XXX are private AllStar nodes
- K8JTK call seen ALOT on dashboards: "default" callsign,
calls lost in analog conversion

K8JTK Hub: Dashboards

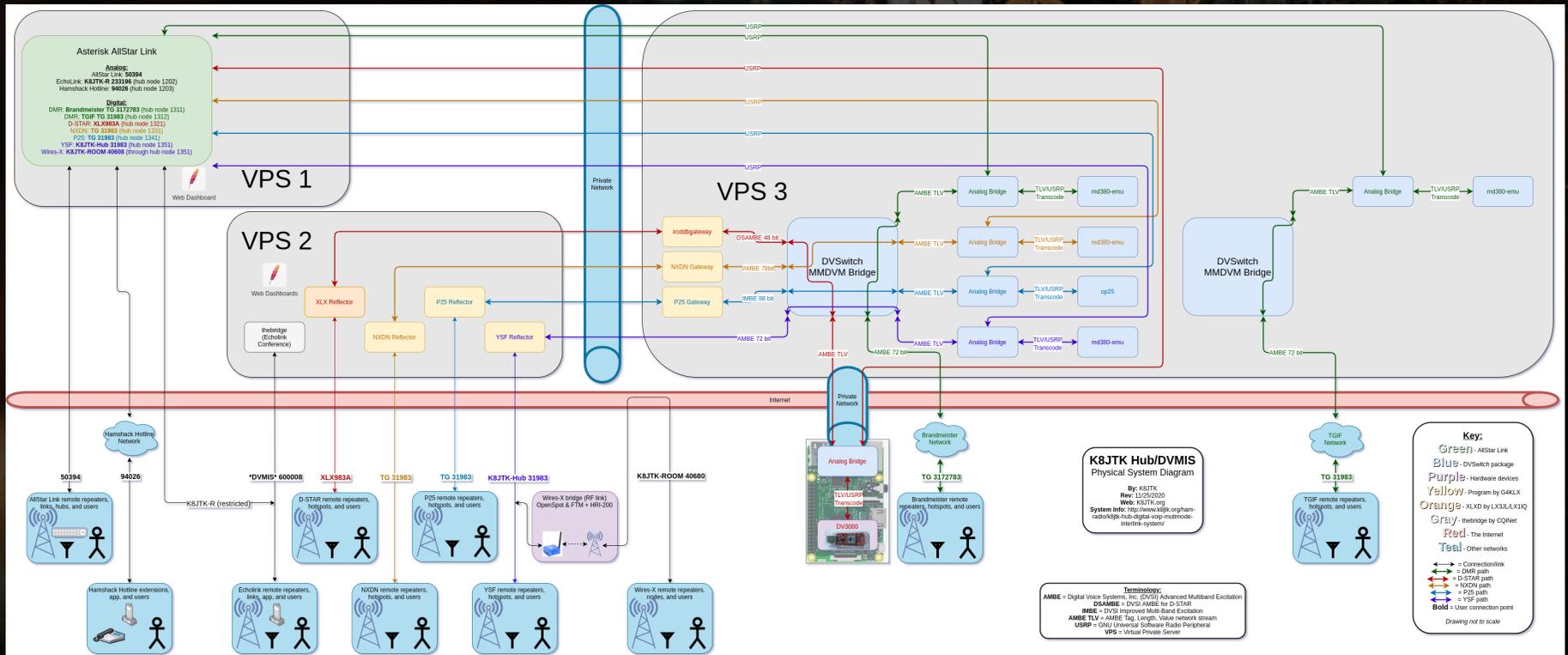
(screenshots)

- AllStar Link & Hamshack Hotline: Allmon2.K8JTK.org,
[Bubble Chart](#), [WE0FUN Dashboard](#)
- DMR: [Brandmeister TG ~~31983~~ 3172783](#) Last Heard
- D-STAR: XLX983.K8JTK.org
- NXDN: NXDNReflector31983.K8JTK.org
- P25: P25Reflector31983.K8JTK.org
- Wires-X: [Wires-X software](#)
- YSF: YSFReflector31983.K8JTK.org
- Allmon2: 1XXX are private AllStar nodes
- K8JTK call seen ALOT on dashboards: "default" callsign,
calls lost in analog conversion

Pretty pictures: Logical connections



Pretty pictures: IP connections



AmateurLogic.TV

Thank You!

The ALTV Sound Check net has been a test of the system.

Thanks to Tommy, George, Emile, Mike, and everyone who has connected for letting this system provide entertainment for your net!

THE END

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- Contact me for nets or other uses of K8JTK Hub

- This presentation is available on my website under the "Presentations" category: K8JTK.org